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ABSTRACT

A bus driver training program was developed and implemented in a rural school district in an effort to improve the driving skills of the bus drivers. The program was tailored to meet the needs of the bus drivers and utilized various community agencies for demonstration and teaching purposes. The subject areas included in the program were driver role and responsibility, pupil relations--management and discipline, preventive maintenance, driving fundamentals, defensive driving, accident prevention and emergencies, first aid, vehicle familiarization, and current vehicle code. The practicum was originally scheduled as a 20-hour training program, but, at the request of the drivers, was expanded to 30 hours to include Red Cross first aid certification. Significant improvements were made in reducing the number of bus accidents and discipline referrals and in lowering preventive maintenance costs. The drivers evaluated the training program as worthwhile and beneficial to them in their work. (Author/MLF)

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DEVELOPMENT AND IMPLEMENTATION OF A BUS DRIVER TRAINING PROGRAM

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By

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Submitted in partial fulfillment of the requirements of the National Ed. D. Program for Educational Leaders, Nova University

Introductory Practicum
South Park Cluster
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INTRODUCTION

In 1971, the Pennsylvania Department of Education mandated that the school districts of Linesville, Conneaut Lake and Conneaut Valley, located in Crawford County, Pennsylvania, merge to form what is now known as the Conneaut School District.

The Conneaut School District is a large rural district in Northwestern Pennsylvania, covering approximately 350 square miles, with a school population of 4,300 students. These students are housed in eight elementary schools, two churches, one Masonic Building and three high schools.

The former Linesville and Conneaut Valley School District Attendance Areas used contracted bus service prior to the merger and continued to transport students in the areas after the merger using the same contractors. The Conneaut Lake District transportation system used district-owned busses and still does today. District-owned busses transport 2,050 students while traveling approximately 1,650 miles daily. Busses travel from the town of Conneaut Lake to and from rural areas. The roads in the district range from primary two-lane hard surface roads to single-lane dirt roads. The school district maintains a fleet of twenty-three busses and two spare busses. The two bus contractors maintain forty-five busses and five spare busses. The entire fleet travels approximately 5,000 miles per day and transports approximately 4,000 students. The transportation system is responsible for the transportation of special education students,

vocational school students, athletes and private school students. The busses travel approximately 1,000,000 miles per year. It is the responsibility of school administrators to have properly trained bus drivers in accordance with state standards.

THE PROBLEM OF TRANSPORTATION

The problems concerning bus transportation in the Conneaut School District were the result of the following factors:

1. increase in school bus accidents
2. failure to apply proper first aid treatment at the scene of an accident
3. increase in discipline problems on busses
4. failure to perform proper maintenance procedures

Accidents were common. In the year preceding the practicum there were seven bus accidents. None of these accidents involved serious injury although first aid techniques had to be applied in several instances. In one instance a bus was struck broadside by a truck and was extensively damaged. A freak of nature, icy roads, saved the students from serious injury.

The bus drivers involved in the accidents indicated a need for first aid training. In informal conversations these drivers emphasized a need for special training.

In the two years preceding the practicum there was a thrity percent increase in the number of student discipline referrals submitted by the drivers to the administration. In the year preceding the practicum the bus drivers submitted 218 discipline referrals to the administration. The drivers complained about the "lack of control on the school bus."

The head mechanic complained that the drivers were lax in performing

proper inspections prior to driving the busses. The failure of the drivers to perform these inspections cost the Conneaut School District an estimated $900.00 in repairs and related expenses that could have been avoided.

In the past few years there had been increased social pressure for additional safety measures related to students and bus drivers. Parents questioned the qualifications of bus drivers and the conditions of the vehicles. It was believed that a program needed to be developed for both the new and the regular drivers to reduce the danger of death and injury during transportation. It was hoped that publicizing this training program would increase public support.

Frequently, the district experienced great difficulty in securing substitute drivers who were properly qualified. This may have been due to the unfavorable public image of bus drivers. It was believed that publicizing the bus driver training program would help to obtain persons interested in substitute driving.

OBJECTIVES OF THE BUS DRIVER TRAINING PROGRAM

In order to develop a bus driver training program, the following terminal performance objectives were written for the program:

1. An eighty percent decrease in school bus accidents will be realized.
2. An eighty-five percent decrease in student discipline referrals will be realized.
3. A ninety percent decrease in maintenance costs will be realized.
4. One hundred percent of the drivers will increase their knowledge of first aid.
5. Eighty percent of the drivers will say that the program has benefitted them and that it was a worthwhile program.

In order to accomplish these objectives, the following process objectives were written for the program:

1. to develop a bus driver training program in proper school bus driving techniques as determined by the school and state law
2. to develop a bus driver training program on acceptable student behavior on school busses and methods of handling and referring problem students
3. to develop a bus driver training program on the needs of preventive maintenance so that the drivers would satisfactorily perform all required preventive maintenance

checks and demonstrate proper preventive maintenance reporting procedures

4. to develop a bus driver training program to teach drivers to evaluate conditions at the scene of an accident; to establish treatment priorities, and to treat symptoms of severe bleeding, stoppage of breath, sucking chest wounds, shock, heat stroke and life threatening fractures

PRACTICUM DESIGN

The development and implementation of a bus driver training program in the Conneaut School District began with the School Board's approval on January 12, 1977. At the regular School Board meeting the superintendent recommended that the district develop and implement an organized bus driver training program to serve the district's bus drivers.

The practicum included:

1. the development and implementation of an organized program of instruction for bus drivers
2. the evaluation of the program during implementation
3. the evaluation of the results of the program
4. the documentation of all facets concerning the planning, implementation and evaluation of the practicum

The program of instruction for bus drivers will be taught by an instructor and assisted by personnel from the school district and local community agencies. These agencies will provide people who can contribute to the training programs in their areas of expertise as follows:

1. Civil Defense - first aid instruction
2. Fire Department - the use of fire extinguishers and emergency equipment
3. Pennsylvania State Police - bus driver testing requirements and interpretation of the new vehicle code

4. Conneaut School District Administration - pupil relations and discipline

The classroom instruction will take place in Conneaut Lake High School. The in-bus demonstration and instruction will be held in the bus parking lot adjacent to Conneaut Lake High School.

The bus driver training program is a twenty hour program that was initially scheduled two hours per meeting. It will expose the inexperienced bus driver to knowledge, skills and attitudes necessary for becoming a satisfactory school bus driver. For the more experienced bus drivers the program will provide a review of the more important operator responsibilities essential to maintaining professionalism on the job. The instructional program will serve as a mechanism for updating the bus drivers' knowledge of law, equipment safety practices and related information.

The following scheduled activities will be included in the program to meet the objectives:

I. CLASSROOM ACTIVITIES

A. driver role and responsibility

B. pupil relations: management and discipline

C. maintenance preventive techniques

D. fundamentals of driving

E. techniques of defensive driving

F. accident prevention and emergencies

G. techniques of first aid

II. IN-BUS ACTIVITIES

A. vehicle familiarization

B. maintenance preventive techniques

C. procedures for emergencies

D. techniques of driving fundamentals

E. techniques of driving maneuvers

III. ON THE ROAD ACTIVITIES

A. techniques of driving - traffic

B. techniques of defensive driving

THE BEGINNING OF THE SCHOOL BUS DRIVER TRAINING PROGRAM

At the regular meeting of the Conneaut School Board held on January 12, 1977, the directors approved the administrative recommendation to develop and implement a bus driver training program (see appendix A, p. 41 and appendix B, p. 42). In addition to the approval of the program, the School Board approved the hiring of an instructor and the program budget. The author was authorized by the superintendent to develop a bus driver training program that would meet the bus driver training needs of the district.

PLANNING THE BUS DRIVER TRAINING PROGRAM

Beginning in the middle of January 1977, informal meetings were held with the superintendent to discuss the bus driver training program. These brainstorming sessions resulted in the following recommendations:

1. Bus drivers should have input concerning curriculum and the scheduling of activities.
2. The curriculum should be designed to benefit students, parents, teachers and administrators as well as bus drivers.
3. A pre-test should be given to determine areas where the bus drivers need instruction.
4. A post-test should be given to evaluate program efficiency.
5. Facilities for the program should be located in areas convenient to all persons involved.

The superintendent scheduled the proposed bus driver training program for discussion at the next principals' meeting scheduled for January 25, 1977 (see appendix A, p. 41).

At the regularly scheduled superintendent's meeting for principals the proposed bus driver training program was presented. The principals expressed the opinion that there was a definite need for the program. The principals believed the program should include training in the areas of defensive driving, first aid and pupil discipline. They knew that the drivers were having difficulty maintaining order on the busses. The principals felt the drivers showed partiality to

certain students. This was obvious when drivers referred written discipline cases to the administration. Furthermore, the principals believed that this partiality helped to create additional discipline problems for the drivers. The principals voiced their desire to participate in the program as instructors, especially in the area of discipline and pupil management.

A meeting was held with the bus driver training isntructor and the head mechanic to discuss the proposed bus driver training program (see appendix B, p. 42) This meeting resulted in the following recommendations:

1. Drivers should have input concerning program classes and activities.
2. Instruction should be presented in an interesting manner.
3. Community agencies such as the State Police, Civil Defense and the Fire Department should be utilized in the program.
4. Classes should be scheduled in facilities located near the bus compound.
5. The program should be evaluated at its conclusion to ascertain results.

From February 1, 1977, to the middle of May 1977, efforts were made toward planning, meeting with various groups and individuals, scheduling instructors and procuring the necessary materials. The meeting with bus drivers held on February 9, 1977, added much impetus to the planned bus driver training program. The majority of the twenty-three drivers present at this meeting expressed the opinion that topics such as first aid, discipline, defensive driving and emergency procedures would be the most relevant for them. The following factors may have been responsible for influencing their thinking:

1. The winter during the 1976-77 school year was more severe than usual creating unusually hazardous driving conditions.
2. The drivers had already been involved in five bus accidents.
3. The drivers were experiencing difficulty controlling the students on the busses.
4. The accident, which had been a near tragedy, reflected a lack of knowledge concerning first aid and emergency procedures on the part of an experienced driver.

The near tragic bus accident was the result of icy road conditions. The accident occurred when a school bus slid through a stop sign onto a heavily travelled highway before being hit broadside by a truck. The bus was spun around 180 degrees and thrown into a snow bank on the berm. Later, investigators speculated that had the surface of the road not been icy the impact would have broken the bus apart or overturned it, probably causing death to many of the fifty-five students in the bus. The driver reported that he lost consciousness for several minutes during the accident. Several of the children had broken bones and severe cuts. When the driver regained consciousness he was unable to provide first aid or implement emergency evacuation procedures. The driver related his inadequacies to the other bus drivers. Because of this experience the drivers were enthusiastic about a bus driver training program. The drivers had some concerns about the number of classes, length of classes and class organization. The drivers were quick to mention that they were volunteering their time, and that they wanted the classes to be meaningful. The majority of drivers wanted these courses to help give them credibility and establish rapport with both the school and the community.

At this meeting the bus drivers discussed the tentative class schedule for the bus driver training program (see appendix C, p. 45). Thirteen drivers did not want the classes scheduled in the evenings, eight drivers said they had to "think about it" and for five drivers the tentative schedule was suitable. The drivers were told to think about a class schedule that would be more compatible with their personal time schedules.

While these meetings were progressing R.I.S.E. and E.R.I.C. searches were conducted for concepts and trends that might be helpful. Several concepts began to surface from these articles. Gilliland (1969) discussed various facets of a school safety education program and included a section on school bus safety. He discussed the necessity for seating charts, bus evacuation drills and the basics of first aid. McDougall (1976) stressed driver's role, driver's responsibility, driving skills and emergency procedures. She used these categories as subject areas to develop a bus driver selecting and training program which resulted in a drastic reduction in accidents and subsequent lower insurance cost to the district. The Tennessee Manual for School Administrators on Pupil Transportation (1961) emphasized the importance of drivers' knowledge of role and responsibility coupled with the ability to deal effectively with discipline problems. Standards for School Bus Operation from the Florida State Department of Education (1970) stressed the necessity of school systems to promulgate, communicate and enforce procedures to be followed by students. Brown (1965) emphasized the value of discipline on the school bus. Doherty (1968) emphasized student discipline as being the most important consideration in school transportation programs. Whisman (1971) stressed the need for a specific

program relating to the responsibilities of the drivers. Seguin et al. (1975) stressed the ideas of schools providing training courses for school bus drivers to emphasize fundamental concepts of school bus operation and to accommodate the needs of both untrained and seasoned drivers. These writers placed emphasis on the value of first aid training for bus drivers. Stewart (1973) emphasized the necessity of close cooperation among the transportation director, administrators, and drivers in developing the program. Finally, Schumacher (1974) suggested the importance of drivers having input in what should be included in the training program curriculum.

On April 13, 1977, the author held a meeting with bus drivers to discuss some of the current transportation concerns and attempted to receive some input concerning the bus driver training program. The drivers were interested in the proposed dates for the class schedule (see appendix C, p. 45). Eighty percent of the drivers present expressed the opinion that classes should be conducted on Saturday mornings. They requested that these classes be longer than two hours (see appendix D, p. 46). This indicated that the majority of drivers had discussed the class schedule among themselves and decided on a schedule. This was in contrast to the diversity of opinions concerning class scheduling demonstrated during the February 9, 1977, meeting. The drivers felt that classes scheduled on Saturday mornings during the school year would be more convenient for them. The schedule was changed to meet the drivers' wishes because their participation in this program was voluntary. They were not being paid for attendance. The attitudes, input and cooperation of the drivers were helpful throughout the program.

The bus drivers expressed a need for the program. They appreciated the fact they were asked for input on various aspects of the program. As a result they attended all classes, participated enthusiastically and helped make the program a success.

THE BUS DRIVERS GO TO SCHOOL

The first class was held on May 14, 1977. A pre-test was given at the beginning of class (see appendix E, p. 47). The pre-test served a dual purpose: it was used as a diagnostic test to determine what group deficiencies existed, and it was used as a basis to evaluate the success of the program. The items in the pre-test related to the following five content areas (see appendix F, p. 54):

1. Public Relations
2. Law and Administration
3. Safety and Driving Procedures
4. Understanding and Handling Children
5. Medical Knowledge

An analysis of the pre-test was to be used to determine the content and the instruction in the classes. Areas of deficiency uncovered through the use of the pre-test were to be emphasized.

The following chart gives the breakdown of correct responses on the pre-test in each category:

Area	Pre-Test
Public Relations	77.5%
Law and Administration	76.0%
Safety and Driving Procedures	77.0%
Understanding and Handling Children	65.7%
Medical Knowledge	82.7%
Overall Average Items Correct	77.0%

The pre-test results of driver knowledge did not agree with drivers' perceptions of what they believed they needed. The drivers had been given several opportunities at bus driver meetings to give input concerning the study areas to be included in the bus driver training program. Their comments illustrated their perceived areas of weakness. The test results, especially in the medical area, did not support the drivers' perceptions. There were probably two reasons for these results:

1. the number of items in certain areas of the pre-test
2. the drivers' insecurity with their current skills based on:
    a. number of accidents having occurred
    b. number of possible legal actions against drivers involved in bus accidents

The drivers felt they needed more extensive training in first aid techniques. This request was frequently heard by the author and other administrators at meetings and in discussions held with the bus drivers. However, the bus drivers answered eighty-two percent of the questions on the pre-test correctly. After discussion with Intermediate Unit transportation specialists, central office administration and bus drivers, it was felt that the number of items in certain areas of the pre-test, especially in the medical area, was small and may not have accurately measured the drivers' knowledge of first aid. The drivers' insecurity may have resulted from the number of accidents in the year prior to the practicum. In these accidents several students were injured. The bus drivers involved in these accidents had difficulty administering proper first aid techniques to the injured students. Some

parents complained bitterly. Other parents threatened legal action. A few parents wanted to have a driver fired. The test results, bus accidents, injured students and possible legal actions against drivers were all reasons the drivers desired more training in first aid.

After considering the input from the drivers and the results of the pre-test, it was decided to include six hours of first aid instruction in the twenty hour training program. The first aid instruction was included to increase driver self-confidence and ability to assist injured persons. The first six hours of first aid instruction were relevant to situations common to bus drivers and school transportation.

The next phase of the training involved a demonstration of bus evacuation techniques (see appendix G, p. 55). The teachers, with the help of the more experienced drivers, demonstrated the proper techniques for both front and rear door bus evacuation drills. Drivers took part in the evacuation drills after the demonstrations.

The class concluded with a discussion concerning driver role and responsibility. This discussion included the following topics:

1. state and local regulations for drivers
2. role and responsibility of the school bus driver
3. attitudes and habits that would encourage support of the pupil transportation program

The second class, held on May 21, 1977, was taught by the Director of Civil Defense and concerned itself with first aid techniques as related to school bus drivers (see appendix A, p. 41). Two Red Cross films were shown: one concerned treatment of shock, and one concerned mouth to mouth resuscitation.

The drivers had become very interested in the first aid class.

The bus drivers felt they were somewhat deficient in the knowledge of first aid techniques. At the conclusion of class, there was a question and answer period. During the question and answer period a discussion concerning the need for more first aid training developed. Many drivers felt that first aid should be taught more than the proposed six hours. They requested an extension of first aid training to include ten more hours of instruction leading to Red Cross certification in first aid. The drivers believed that the first aid presented by the Director of Civil Defense was very interesting and would benefit them in the performance of their job. It was noted that the drivers were aware that holding a Red Cross certification card provided them with a degree of legal defense and protection in an accident situation. It was explained to the drivers that it was impossible to include additional first aid at this time in the training program. It was suggested that the additional first aid training could be offered at the conclusion of the planned program.

The first aid instructor agreed to teach the ten additional hours of first aid instruction which would give the drivers Red Cross certification in first aid. After a discussion of the scheduling of classes, the drivers unanimously voted to extend the bus drivers' training course ten hours to include the first aid training necessary for Red Cross certification (see appendix H, p. 57).

Since the time spent by the drivers was voluntary and they were not compensated by the School District, their volunteering to extend the training program was interpreted as evidence that the drivers perceived the program to be meaningful and worthwhile (see appendix I, p. 58). This represented a significant development in the bus driver

training program. It helped "esprit de corps", reduced cutting of classes and brought enthusiasm into the classes.

The third class, held on June 4, 1977, consisted of first aid instruction in the following areas:

1. techniques to prevent choking
2. techniques of artificial respiration
3. techniques of bandaging
4. bus evacuation drills

The drivers stated that an interesting part of this class was the bus evacuation demonstration presented by the instructor. The bus drivers were given instruction and practical experience in the application of bandages to various types of wounds, splinting and placement of individuals on stretchers. Techniques for stretcher procedure were applied in both on-bus and out-of-bus settings. To accomplish this procedure, the drivers were divided in groups of five. One driver was given a hypothetical injury and placed in a certain area of the bus. The remaining four group members had to properly splint and bandage the victim, place the victim on a stretcher and remove the victim from the bus. The drivers all took turns being the victim. This enabled everyone to participate in both phases of the training. In a bus situation each stretcher position demands a somewhat different approach to evacuation. The bus drivers were the most enthusiastic about this part of their training.

The enthusiasm of the drivers was reflected in a local newspaper article printed on June 9, 1977 (see appendix I, p. 58). The newspaper reporter that reports on the school board meetings had asked the author about the progress of the bus driver training program. The

reporter was invited to attend any of the scheduled classes, take pictures and interview participants. The result of his visitation was a most favorable newspaper article concerning the school district training program. The publicity had a positive effect on the entire program.

The fourth class, held on June 20, 1977, consisted of preventive maintenance techniques, emergency procedures, fire extinguisher demonstration and defensive driving (see appendix H, p. 57).

The bus maintenance class helped drivers to identify and describe the basic procedures involved in normal daily maintenance inspections. This included pre-trip, on-the-road and post-trip inspections to detect impending vehicle defects. Prompt meaningful reporting of defects were emphasized. Examples were given to illustrate the possible financial savings and the safety implications of proper maintenance techniques.

Defensive driving instruction utilized a driver training technique called "commentary driving." Commentary driving required the trainee to express his thoughts about his driving, the vehicle, and road conditions as they occurred. Drivers expressing thoughts encouraged clearer thinking, permitted the instructor to know what was going on in the mind of the driver and enabled the instructor to correct errors immediately. This technique enabled the instructor to deal with the mental errors of the drivers.

Next, the drivers participated in a fire extinguisher demonstration. Members of the local fire department made certain all drivers were given the opportunity to extinguish an actual grease fire. They

demonstrated emergency evacuation procedures on an old bus. The techniques utilized included the proper methods of kicking out some of the windows to provide a means of escape.

The fifth class, held on June 21, 1977, consisted of pupil relations, management and discipline and in-bus vehicle familiarization (see appendix H, p. 57). The highlight of this class was a presentation concerning pupil discipline given by the superintendent, assistant superintendent, elementary principal and assistant high school principal. These presentations were followed by a forty-five minute question and answer period. The bus drivers felt this segment of the course was beneficial. The drivers were impressed that the central office administration thought positively enough about the training program to take an active part.

The sixth class, held on June 22, 1977, was the last regularly scheduled class. A trooper, from the Pennsylvania State Police, discussed accident prevention, emergencies and the new Pennsylvania vehicle code. The class concluded with the administering of the training program post-test (see appendix J, p. 59) and the program evaluation questionnaire for drivers (see appendix K, p. 66).

The additional three classes in first aid were held on August 15, 17 and 19, 1977. Although these classes were requested by all twenty-six training program participants, only sixteen drivers completed the course (see appendix L, p. 69). Out of the ten remaining drivers, six completed six hours of training and four drivers completed three hours of the additional first aid training. These ten drivers were encouraged to complete the hours missed at the local chapter

of the American Red Cross. As of the writing of this report, six of the drivers completed their hours and have received their Red Cross certification cards (see appendix L, p. 69). Twenty-two of the twenty-six bus drivers (eighty-five percent) have completed the requirements necessary for their Red Cross certitication.

THE BUS DRIVER TRAINING PROGRAM AS A VEHICLE TO IMPROVE THE TRANSPORTATION SYSTEM

It was believed that this training program would be helpful in solving the problems of the transportation system if two separate outcomes were produced. It would be necessary to increase the understanding and knowledge of the bus drivers in the various areas previously mentioned. It would be equally important to effect an attitudinal change. Specifically, it was believed that it would be necessary to build an "esprit de corps" among the bus drivers. If this feeling of pride could be developed, application of this knowledge would be facilitated.

In order to produce the needed attitudinal changes, the classes were structured in an informal format (see appendix M, p. 70). Drivers were encouraged to ask questions. Questions were solicited by instructors and handled in a positive manner to encourage participation. Where possible, questions were answered by using an example (taken from an actual situation within the district) that a driver had handled successfully.

An integral part of all the classes was an emphasis on the positive aspects of the transportation system. Efforts were directed at building images of the drivers and the transportation system. Five main points were emphasized in this process:

1. The transportation system is a good one.
2. The driver is the single most important aspect of the system.

3. The administration actively supports the bus drivers.
4. The administration is proud of the work done by the drivers.
5. The transportation system is improving and will continue to improve with the help of the drivers.

These points were integrated into the content of the course material.

This attitudinal component of the training program was viewed as being critical because the objective of the program was to improve the transportation system, not limited to increasing or expanding the knowledge of the drivers. For the system to improve, application of the increased knowledge was paramount. If the drivers wanted to improve the system and to increase their driving skills, improvement would follow naturally. If the drivers did not want to improve the system and/or themselves, no class instruction could effect improvement.

In this way the driver training program was seen as a vehicle to improve the transportation system. The program was designed to function as a means to produce changes in bus driver knowledge and attitudes. These changes in turn would be of singular importance in producing overall improvement in the transportation system

EVALUATION

Evaluation of the practicum began with an appraisal of the major processes involved in the development and implementation of the bus driver training program. Four processes had been delineated:

1. to develop a bus driver training program in proper school bus driving techniques as determined by the school and state law
2. to develop a bus driver training program on acceptable student behavior on school busses and methods of handling and referring problem students
3. to develop a bus driver training program on the needs of preventive maintenance so that the drivers would satisfactorily perform all required preventive maintenance checks and demonstrate proper preventive maintenance reporting procedures
4. to develop a bus driver training program to teach drivers to evaluate conditions at the scene of an accident; to establish treatment priorities; and to treat symptoms of severe bleeding, stoppage of breath, sucking chest wounds, shock, heat stroke and life threatening fractures

Each of the four stated processes was achieved. A bus driver training program was developed to include: school bus driving techniques, student behavior on school busses, preventive maintenance procedures and first aid techniques.

Formative evaluation of the program was undertaken at the conclusion of the program. The twenty-six drivers were asked to take a post-test concerning course content (see appendix J, p. 59), and to complete a questionnaire relating to the bus driver training program (see appendix K, p. 66). The drivers were asked to make suggestions concerning program improvement.

It should be remembered when considering the results of the test analysis that like numbers on the pre-test and post-test do not necessarily indicate the same question or study area. For example, question number two on the pre-test concerns laws and regulations but question number two on the post-test concerns bus driver safety habits. The questions in the pre and post-test analysis were grouped according to areas of study (see appendix F, p. 54).

The results of the pre-test and post-test comparison were judged to be positive. The percentages for correct responses were tabulated in an item analysis for the pre-test and post-test (see appendix N, p. 71). The percentage of correct responses for each item were compared in the test analysis. The chart on the following page presents the results of the pre and post-test data according to study areas. The percentages represent the average number of correct responses in each area.

As indicated by an analysis of data, the training given the drivers during the bus driver training program was successful. There were major gains in all areas with the exception of the medical area. It is important to note that after the bus drivers received the scheduled first aid training they wanted to extend the bus driver training program

ten additional hours to insure including more first aid training for Red Cross certification. The drivers wanted to increase their confidence in dealing with medical and first aid problems. The drivers were aware that holding a Red Cross certification card had legal implications in administering first aid. This extension of the program was a positive indicator of the program's success.

PRE-TEST AND POST-TEST RESULTS

Area	Pre-Test	Post-Test	% Change
Public Relations	77.5%	100.0%	+ 22.5%
Law & Administration	76.0%	96.5%	+ 20.5%
Safety & Driving Procedures	77.0%	86.5%	+ 9.5%
Understanding & Handling Children	65.7%	76.0%	+ 10.3%
Medical Knowledge	82.7%	89.0%	+ 6.3%
Overall Average Items Correct	77.0%	87.0%	+ 10.0%

The bus driver training program was used as a vehicle to solve the problems of the transportation system by accomplishing the following terminal objectives:

1. to reduce the number of bus accidents by eighty percent
2. to reduce the number of student discipline referrals concerning transportation by eighty-five percent
3. to reduce maintenance costs due to improper maintenance techniques by ninety percent

4. to increase the use of proper first aid techniques in bus accident situations
5. to have eighty percent of the bus drivers perceive the training program as worthwhile and beneficial to them in their work

The following chart illustrates the data concerning the first three objectives.

	Objective one	Objective two	Objective three
	Bus Accidents	Discipline	Preventive Maintenance Cost
1976-77	7	218	$900.75
1977-78	1	93	77.00
Change	- 85.7%	- 57%	- 91%
Expected Change	- 80.0%	- 85%	- 90%

The objectives to reduce bus accidents and maintenance costs created by improper maintenance techniques were achieved. Bus accidents were reduced by eighty-six percent and maintenance costs were reduced by ninety-one percent. The percentage of reducing discipline referrals was not reached. A reduction of eighty-five percent had been predicted and the results reflect a fifty-seven percent decrease in discipline referrals. The decrease in discipline referrals is meaningful and can be considered a positive result of the practicum even though the decrease did not reach the predicted change.

Bus accidents were reduced by eighty-six percent. In the school year (1975-76) preceding the practicum there were seven bus accidents and in the school year (1976-77) of the practicum there was one bus accident. It was predicted that the rate of bus accidents would decrease by eighty percent and that prediction was surpassed.

The number of discipline referrals concerning transportation was reduced by fifty-seven percent. During the previous school year (1975-76) 218 referrals were received and this number was reduced to ninety-three in the school year (1976-77) of the practicum. It is believed that these results were meaningful even though they did not reach the predicted eighty-five percent. The following factors may have been responsible for this development:

1. The author's predicted percentage of reduction was based on the ideal or maximum to be achieved.
2. The drivers referred more minor offenses in order to assume control early in the school year.

The percentage of maintenance costs exceeded the predicted rate of change by one percent. During the year prior to the practicum the amount spent on maintenance was $900.75. This amount was reduced to $77.00 in the year of the practicum. Total cost for maintenance items was reduced by ninety-one percent. It was predicted that the cost would be decreased by ninety percent and that prediction was exceeded by one percent. The identification of maintenance items and cost for each item came about through meetings with the head mechanic. All invoices concerning repair parts during the 1976-77 school year were surveyed and classified in four maintenance areas

(see appendix P, p. 74). These areas were:

1. Tires
2. Battery Cables
3. Flashers
4. Mirrors

During the 1975-76 school year the bus drivers were careless in checking the above mentioned maintenance areas. The bus drivers did not check inside dual tires. These tires were used without sufficient air pressure and, as a result, the tire and tube became damaged. The drivers at times failed to notice loose battery cables which resulted in the bus becoming inoperable. Occasionally flashers were left burning that caused damage to the flasher and the battery. Mirrors were often broken by drivers failing to park their busses properly in the designated spaces.

These areas of maintenance involved both direct and indirect costs. For example, a loose battery cable could lead to direct and indirect costs. A loose battery cable usually disengaged from the battery at some point on the route causing the bus to become inoperable. The driver had to call the bus garage and another bus was sent to continue the run. The mechanics had to repair the inoperable bus. This entire process resulted from a loose battery cable. The direct costs involved in this process included the battery cable, substitute driver's salary and spare bus expenses. Indirect costs included the salary of mechanics who would have been working on other necessary repairs at the garage. Proper maintenance checks would have prevented these expenses. The schedule of estimated repair costs illustrates

maintenance areas and costs more clearly (see appendix P, p. 74).

The maintenance areas and the cost data per area during the 1976-77 and 1977-78 school years are illustrated on the following chart.

MAINTENANCE COST DATA

Year	Maintenance Area				Totals
	Tires	Battery	Flasher	Mirrors	
1976-77	(64 x 6) = $84.00	(41.75 x 5) = $208.75	(24.50 x 4) = $98.00	(12.50 x 12) = $210.00	$900.75
1977-78	-	-	(24.50 x 1) = $24.50	(17.50 x 3) = $ 52.50	$ 77.00
%Change	- 100%	- 100%	- 75%	- 75%	- 91%

It was predicted that maintenance costs created by improper maintenance techniques would be reduced by ninety percent. Costs were actually reduced by ninety-one percent. The predicted outcome was exceeded by one percent.

Terminal objective four projected drivers would increase their use of proper first aid techniques in bus accident situations. The use of first aid techniques by bus drivers was to be evaluated by checking records of all bus accidents where first aid techniques were needed to aid injured children. The driver involved in each accident was to log all first aid techniques utilized. Techniques used by the driver were then to be discussed with a doctor and first aid instructor to evaluate the appropriateness of the techniques that were utilized. However, the one bus accident during the 1977-78 school year was very minor in nature. In that accident a bus without students hit a fire hydrant. The accident was very minor and the use of first aid techniques by the driver were not required. Therefore, the evaluation of the increased use of proper first aid techniques by the bus drivers in bus

accident situations was not possible. However, based on the results of the post-test and the additional training in first aid techniques, it was believed that had a serious accident occurred the drivers would have demonstrated an increase in the use of proper first aid techniques.

The fifth objective, to have eighty percent of the bus drivers perceive the training program as worthwhile and beneficial to them in their work, was surpassed by twenty percent. At the conclusion of the bus driver training program a questionnaire was given to the twenty-six bus drivers participating in the course (see appendix K, p. 66). The results of the questionnaire indicated a positive attitude toward the program (see appendix O, p. 73). One hundred percent of the drivers felt that the bus driver training program presented was worthwhile. One hundred percent of the drivers expressed the opinion that course material was presented in an interesting manner. One hundred percent of the drivers agreed that first aid classes were both meaningful and interesting. Ninety-six percent of the bus drivers agreed that classes concerning proper maintenance techniques were worthwhile. Fifty-eight percent of the drivers felt the demonstration concerning the use of emergency equipment and fire extinguishers was worthwhile. Eighty-one percent of the drivers felt that classes concerning pupil relations and discipline provided the driver with techniques to control disruptive students. Sixty-five percent of the bus drivers were of the opinion that in-bus, on-the-road, classes were needed. Ninety-two percent of the drivers agreed that classes concerning new bus laws were meaningful and interesting. Sixty-five percent of the bus drivers felt the training program was too brief.

In addition, the evaluative questionnaire asked the drivers to respond to the following four questions:

1. What did you like about the bus driver training program?
2. What did you dislike about the bus driver training program?
3. In your opinion what changes should be made to improve the program?
4. Do you think this program will make a difference in your ability to perform your duties as a bus driver?

The most typical responses by bus drivers on what they liked about the training program were:

1. that classes were interesting and moved quickly
2. that the first aid classes were helpful
3. that the classes about pupil discipline and discussion with administrators were beneficial
4. that the discussion of common problems was helpful
5. that the drivers got to know each other better
6. that the program helped the bus drivers to work together

The most typical responses other than no response by the drivers concerning their dislikes about the program were:

1. that the program was held in the summer
2. that the tests created anxiety and concern
3. that the fire extinguisher demonstration was too short
4. that the length of the program was too short to exhaust certain topics

Responses to question three concerning the changes necessary to improve the program were:

1. that the classes should be held in the winter

2. that a mock accident to involve hospitals, ambulances, administrators, students, parents and community organizations should be designed
3. that fire extinguisher demonstration be expanded
4. that the program was satisfactory

In response to the fourth and final question all twenty-six drivers responded positively that this program has made a difference in their ability to perform their duties as bus drivers.

In summary, the bus driver training program was believed to be worthwhile and meaningful for the drivers as shown by the results of the evaluative questionnaire (see appendix O, p. 73) and the results of pre and post-testing (see appendix N, p. 74).

SUMMARY OF PRACTICUM EVALUATION

The practicum was successful in that the training program successfully achieved four of the five objectives for the practicum. On the indices of bus accidents, reducing maintenance costs resulting from proper maintenance techniques, increased knowledge of proper first aid techniques by bus drivers and driver perceptions of program the practicum achieved its expected outcomes. The practicum did not achieve the objective of reducing bus driver discipline referrals. A fifty-seven percent reduction in the number of discipline referrals was considered to be meaningful, but it did not reach expectations.

A secondary effect of the practicum was that the bus drivers desired to extend the training course to include ten additional hours of first aid training which resulted in Red Cross first aid certification for most of the drivers. This Red Cross certification had not been planned in the original program.

The practicum was also successful in dealing with bus driver absenteeism. This was another secondary effect of the program. Although no statistical analysis was planned, informal observation indicated that compared to the year prior to the practicum absenteeism had greatly decreased, possibly as much as twenty-five percent. Informal conversations with drivers indicated that this was attributed partly to:

1. an increased understanding of the importance of the job
2. and increased pride in performance of duty
3. an increased "esprit de corps" among the drivers

Based upon informal conversations with the drivers, increased pride, feelings of importance and a sense of belonging were evident. Informal reports from parents, students and administrators indicated a positive change in the job performance of the drivers. Another meaningful change concerning the bus drivers was the presence of a sense of humor related to their work. This was interpreted to indicate an increase in the morale of the drivers.

CONTINUING THE DRIVER SCHOOL

Plans have been approved by the School Board to offer the bus driving training program next year. Because of the success of the program, anticipated turnover in drivers and the need for "refresher courses" for the regular drivers, the program will be offered during the fall of 1978. The program will be open to all drivers, both district paid and privately contracted.

The content of the program will be tailored to the needs of the participants through the use of pre-testing and driver input. The results of the pre-test, informal discussions with the drivers and the previous year's driving record will be used to determine the content of the program.

The course outline of the bus driver training program has been made available to school districts through the intermediate unit. Other school districts have access to this information upon request.

Without this practicum, there would have been no training program to meet the needs of bus drivers in the district.

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